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### (54) Double-acting communication device

Doppelt anwendbares Kommunikationsgerät

Dispositif de communication à usage double

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**GB-A- 2 291 560**                      **US-A- 5 335 276**

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## Description

[0001] The present invention relates generally to personal electrical communication devices and particularly to a mobile station which can transmit both speech and alphanumeric messages.

[0002] Mobile phones acting as cellular system terminal devices have rapidly become quite common, and we can assume that in the future almost everybody will have a communication device, which is suitable to be carried anywhere and with which it is possible to call other corresponding devices within the coverage area of the respective system, on a world-wide basis when required. For the present a major part of the mobile phones have been expressly telephones, or in the first place they were intended to transmit speech connections. In digital systems it has become possible to transmit also short alphanumeric messages between the mobile phones. Another story completely are the wire-connected combinations formed by a mobile phone, a data interface and a portable computer, which can be used to transmit through the cellular system any digital data processed by the computer.

[0003] From the publication "Portable Communication" by Peter E. Jackson and David A. Deas, Proceedings of the National Communications Forum, 42 (1988), Sept. 30, No. 2, Chicago, Illinois, USA, it is known a personal message communication device according to figure 1, where a device 1 resembling a modern mobile phone has both a numerical keypad 2 and an character keypad 3. From the text of the publication it is evident that it expressly refers to a mobile terminal of a wide-area communication system, where the terminal can freely move within the coverage area of the system and where the system monitors the terminal's position so that it can correctly route calls to a certain terminal device. In said reference publication the device 1 is presented at an outline level, and there is no detailed description of its structure or functioning. The usability of the presented device is particularly complicated by the small size of the keypads, which obviously was used aiming at generally small overall dimensions.

[0004] From the patent publication US-5,337,346 it is known a mobile phone having a numerical keypad which can be turned to one side, revealing a larger alphanumeric keypad below it. However, in such a solution the display of the device must be made so small that only a very short alphanumeric message will fit in it, in order to have a size which is at least reasonably readable. In said publication the object of the invention is said to be a mobile phone, which can include an electronic notebook function, and it is proposed that the power supply to the device's radio sections is switched off when the notebook function is used. Corresponding solutions are known from several television remote controls, whereby the user, by unfolding the outer covering of the device or a part of it, can enlarge that user interface, e.g. the keypad, of which only a small part is visible when the

outer covering is closed.

[0005] The document EP-A-472 361 describes a portable communication device where a large keyboard can be folded over a display so that it covers a major part of the display. The backside of the large keyboard comprises a smaller keyboard that comes visible when the large keyboard is hidden inside the folded cover. Together with a small part of the display that remains in view, the smaller keyboard serve as parts of a telephone user interface.

[0006] The document WO 97/09813 introduces a clamshell-type portable communication device that has a first user interface on the outer side of its cover and a second user interface on the inner side thereof.

[0007] A preferred embodiment of this invention presents a personal mobile station which can transmit information between users in a more flexible way than earlier. It is also intended to be easy to use and well suited as a mobile terminal of a cellular system and capable of transmitting both voice and versatile graphical information between users.

[0008] These objectives of the invention are achieved by a device comprising the radio sections of a cellular system terminal and comprising two separate user interfaces, of which the first is intended for the transmission of telephone services and the second for the transmission of alphanumeric messages and other services requiring graphical information. The first user interface is located on the outer surface of the device and the second within the device, so that it can be exposed by unfolding the device in at least two parts, in a way intended for this purpose.

[0009] The portable communication device according to the invention may be characterized by the features recited in the characterizing part of the independent claim.

[0010] Preferably, the first and second user interfaces are not dependent upon one another for their operation.

[0011] During the development work leading to the invention it was observed that when the size of the mobile stations were reduced the small outer dimensions already begin to complicate the use of the devices. The user interface, or a certain entirety formed by parts which are designed for the interaction between a user and the device, should be designed so that regardless of the small size of the device itself a clumsy user, even with large hands, can manage the depression of buttons and other required operations without the training of a watchmaker. The disadvantages of the small size are particularly clearly seen in the device according to figure 1 representing the prior art and having buttons only a few millimeters wide and spaced about one millimeter from each other, judging from the size of the pencil which is shown to illustrate the scale.

[0012] The mobile station according to the invention has two separate user interfaces, which are independent regarding the use of the mobile station, i.e. they can be used independently of each other. The first user in-

terface is located on the outer surface of the device and resembles the user interface of present-day mobile phones with a microphone, a speaker, a keypad and a small alphanumeric display. It is intended to be used in the same way as known user interfaces of present-day mobile phones. Because the whole outer surface of the device is available for the realization of this user interface, it can be made large enough so that it is easy to use. However, it is preferable that the keyboard and display means of the first user interface are located on only one side of the outer surface, so that they can be controlled with one glance. In order to use the second user interface the mobile station according to the invention can be opened by unfolding preferably two halves hinged to each other and having at their inner surfaces a larger display, a complete alphanumeric keypad and function keys, which then become visible and available to the user. A space with the size of two times the cross section of the device is available to realize the second user interface, whereby it also can be made large enough to make it easy to use, as was emphasized above.

[0013] Below the invention will be described in more detail with reference to the preferred embodiments shown as examples and to the enclosed figures, in which:

Figure 1 shows a prior art mobile station;

Figure 2 shows schematically the first user interface of a mobile station according to a preferred embodiment of the invention;

Figure 3 shows schematically the second user interface of a mobile station according to a preferred embodiment of the invention;

Figure 4 shows in more detail a part of the user interface shown in Figure 3;

Figure 5 shows in a perspective view another preferred embodiment of the invention; and

Figure 6 shows in a perspective view a further preferred embodiment of the invention.

[0014] Above we referred to Figure 1 when describing prior art, and thus in the description of the invention and its preferred embodiments we refer mainly to Figures 2 to 6. In the figures we use the same reference numbers for corresponding parts.

[0015] Figure 2 shows schematically a mobile station 4 according to the invention seen from above, so that its first user interface is visible. The presented first user interface is quite similar to that of present-day mobile phones according to prior art, of which we can mention as an example the GSM phone model 2110 manufactured by Nokia Mobile Phones Ltd. The first user inter-

face comprises a microphone 5, a speaker 6, a numerical keypad 7, control keys 8 and a rather small alphanumeric display 9. They are realized with components similar to those of prior art mobile phones, and they are used to create a telephone connection through the cellular radio system to another mobile station, in the same way as in known mobile phones. With them it is further possible to realize certain supplementary functions of call set-up, such as finding telephone numbers and names in the memory of the mobile station. The first user interface according to the invention can comprise also other parts than those of the embodiment example shown in Figure 2, but they will not substantially change the purpose nor the use of the interface.

[0016] In order to expose the second user interface the mobile station 4 according to the invention is opened. Figure 3 shows a mobile station 4 according to a preferred embodiment of the invention when it is unfolded, so that its two halves 10 and 11 hinged along the long side are turned so that they form an angle over 90 degrees, preferably to an angle of 135 degrees. The opening angle is determined by the fact that when the device is unfolded it should be as easy to use as possible: the keypad parts of the second user interface should be easily accessible and according to their design the display parts should be located in an optimal angle relative the direction of the user's eyes when the device is in a typical position of use, e.g. in the lap or on a table. It is further advantageous that the mobile station 4 according to the invention will remain, also when it unfolded, in a certain position on a table or any other even surface, which has an effect on the opening angle. In another preferred embodiment the halves 10 and 11 can be turned 180 degrees relative each other, whereby a plate-like structure is obtained.

[0017] In the preferred embodiment shown in Figure 3 the first half 10 comprises on its visible side a display 12, which occupies almost the whole area of the half 10. On the edge areas outside the display the half 10 comprises scrolling keys 13 and command keys 14. In this embodiment the second half 11 comprises only keys. The largest group of keys forms a complete alphanumeric keypad, or a so called QWERTY keyboard 15, in which the alphanumeric keys are preferably in the same standard order that is used in the keyboards of computers and typewriters. This is an advantage because the user doesn't have to learn any new key order, characteristic of the device according to the invention. Further the second half 11 preferably comprises application keys 16, on which there can be seen the names of certain applications, and four arrow keys 17.

[0018] The large-sized display 12 shown in Figure 3 preferably is a liquid crystal display, having a resolution of e.g. 640 x 200 picture elements or pixels. The manufacturing of such displays is a technology known per se. The display 12 can be provided with a touch sensitive film or any corresponding arrangement known per se, with the aid of which it can be used as a data input

device by touching its surface at certain points. All keys 13, 14, 15, 16, 17 shown in Figure 3 are preferably push buttons of the same type as the keys used in present-day mobile phones and/or in so called palmtop or hand-held computers.

**[0019]** Below we describe the purpose and the use of the different key groups. The scrolling keys 13 are intended to move the selection bar in the display, in other words, when the display 12 during use shows a list of optional alternatives and one or several of them are objects to be selected at a time, the selection mark (or marks) showing this will move forwards or backwards when the scrolling keys 13 are depressed. The command keys 14 are so called program dependent keys (softkeys), in other words each of them can select a certain command, which is shown in the display 12 at the location of the respective command key 14. The commands can vary according to the functional status of the device and the program controlling the device. In the preferred embodiment certain often used commands, such as "delete" and "close", are preferably always associated with the same command key 14.

**[0020]** The alphanumeric keys 15 are used to enter alphanumeric characters to the device 4. The same keypad can be used to enter messages in different languages, even when different languages require certain special characters. They are preferably generated so that several characters, e.g. a - ä - å, are assigned to certain keys, so that each character in its turn appears in the display 12 when the user has pushed the respective alphanumeric key and then pushes once or more times a certain special key, a so called "character" key. Another alternative is that each character a - ä - å assigned to a certain alphanumeric key is displayed in sequence when the user rapidly pushes the respective key several times in a sequence, or keeps the key continuously depressed. It is obvious to a person skilled in the art that also other corresponding methods can be used to assign several characters to the same alphanumeric key. Preferably the keypad 15 has indications about which special characters are assigned to each key.

**[0021]** The application keys 16 are preferably associated with the selection of certain applications, for instance so that when the user depresses a certain application key he sets the device in a state where he can begin the transmission of an alphanumeric message, and when he depresses a certain other application key the state changes so that he can update telephone numbers stored in the memory means (not shown in the figures) of the device 4, and so on. Certain shortcut functions, or macros, can also be assigned to certain application keys 16, such as "delete 10 oldest messages in the memory" or corresponding functions. One application key could be a so called special function key, the depression of which opens more applications. Thus the number of application keys 16 will not limit the number of possible applications used in the device 4. In a preferred embodiment the execution of each application is

continued from that point where it was interrupted when said application was last active. With the aid of the arrow keys 17 the user can control the cursor moving in the display 12, or supply the device 4 with other information relating to graphical functions, e.g. draw simple line drawings.

**[0022]** Figure 4 shows in an embodiment example how the display 12 is divided into functional regions. At the center of the display there is an input and output region 18, which is used to communicate alphanumeric and other graphic information to the user. For example, the text will be displayed in this region when the user writes an alphanumeric message and intends to transmit it to another user. Correspondingly, the device displays the contents of the message in the input and output region 18 when the device 4 has received a message containing graphical information and the user wants to read said message. At the right edge of the display 12 there is a command region 19, which typically displays commands corresponding to the command keys 14 which are outside the edge of the display 12 and shown in Figure 3. Then the user will know which command execution corresponds to a depression of each command key 14. The left border region 20 of the display 12 can contain a list of optional actions which can be scrolled using the scrolling keys 13. The region 20 can preferably also be used as an indicator region, which by simple symbols presents to the user information about the device 4, such as the charge status of the battery which functions as the power supply (not shown in the figures), and the cellular radio network's local field strength measured by the device 4. The display can further show the time and the date, a reminder of received messages, possibly the location of the device within a certain rate area, and so on. The division of the display 12 into functional regions is presented only as an example and it is obvious to a person skilled in the art that the display 12 can also be divided in many other ways.

**[0023]** The use of the device 4 according to the invention is briefly described below. The use of the device with the aid of the first user interface shown in Figure 2 in order to utilize the common mobile phone services does not differ from the use of presently known mobile phones, so that in the description below we mainly discuss operation with the aid of the second user interface shown in Figure 3. The description is intended to be an example, and its details do not limit the invention.

**[0024]** Let us assume that the user wants to send a text message to another user with the device 4. First he unfolds the device 4 so that it is in the position shown in Figure 3. He starts a function called "message transmission" by depressing a certain application key 16, whereby a list of commands is displayed at the right edge region 19 of the display 12 containing items Receiver, Message, Transmit. The user depresses that command key 14 at which there is the Receiver command, whereby he will be able to scroll a list of receiver names and connection numbers stored in the memory means of the

device. The user selects a certain receiver with the arrow keys 17 and then he depresses the command key 14 at which there is the Message command. Now using the keypad 15 he can enter a desired alphanumeric message in the display 12. With a sharp pointed drawing tool he can also draw on the surface of the display figures accompanying the message, if the display 12 is provided with a touch sensitive film. At the same time the message is stored in the device's memory means, from where it can be read during the transmission step.

**[0025]** When the user considers the message to be complete he depresses the command key for the Send command, or e.g. a certain application key 16 with a function specified as transmission of the message. The microprocessor (not shown in the figures) controlling the operation of the device 4 reads from the memory means the message written and/or drawn by the user and transforms it into a form in which it can be transmitted through the cellular radio network. A transform of this kind is known e.g. from present-day portable telefax devices. A finished message is transmitted using the device's RF sections (not shown in the figures) to the cellular radio network and thence further to the receiver's terminal device. A cellular radio network base station (not shown in the figures) preferably acknowledges the successful transmission of the message by sending an acknowledgment message to the mobile station 4. The receiver's terminal device can also automatically return information about a successful reception of the message, whereby the device 4 can notify the user about this, either automatically or as a response to an inquiry made by the user using a certain application key 16.

**[0026]** If the user makes a mistake or acts in a way, which for any reason is not allowed by the device 4, or which requires a specification, the device preferably reports this in a "balloon" displayed in the display 12 and telling the user what to do. A typical situation is such where several telephone numbers have been stored for the same receiver and the user must specify the number to which he primarily wants the message to be sent.

**[0027]** The two user interfaces of the device 4 according to the invention, which are separately shown in Figures 2 and 3, are independent in that sense that the user can use them independently of each other. However, the same internal parts related to the operation of the device are used through them, such as the memory means, which store a database containing receiver names and telephone numbers often used by the user. In this way we avoid confusion which could be caused by data that were updated in different ways through different user interfaces. The invention does not limit a simultaneous use of the user interfaces. For instance, during a call the keypad and the display of the second user interface could be used as an electrical notebook, in which the user can store important information he gets during the call, or as a calendar, in which the user during a call can check data relating to his time schedule.

**[0028]** All auxiliary functions which are used in mod-

ern mobile phones could of course be included in the device according to the invention. The device can e.g. have a connector (not shown in the figures), to which it is possible to connect a portable computer through a data adapter in order to form a digital modem connection through the radio medium in a cellular radio network. The device can also have an internal fax modem, whereby it can send and receive telefaxes, whereby the large-size display 12 facilitates the writing and reading of the telefaxes. Further, because the second user interface of the device 4 according to the invention comprises a display 12 and a keypad 15, the device 4 can be preferably used as a small computer terminal via a suitable data communication path, whereby this terminal emulates e.g. a VT 100 terminal in a way known per se, when it is connected to another computer. A preferable way to arrange the communication between the device 4 according to the invention and a certain other device, such as a PC or a printer, is to use an infra-red link, where both the device 4 and the other device comprise infra-red receiving and transmitting means. It is a well known technology per se to realize a communication path based on the infra-red link between a mobile station and a computer. For example, the programs stored in the memory means of the device 4 can be updated through this link.

**[0029]** If the memory means and microprocessor of the device according to the invention have a sufficiently high capacity, it is possible to install in it also other applications which utilize the characteristics of the device 4 as a small portable computer. An example of such an auxiliary application could be a pocket calculator program, which in view of the large display 12 would be able to process mathematical information containing even complicated graphical information, in the same way as e.g. the known scientific calculators manufactured and marketed by Hewlett-Packard Company. Another example of an auxiliary application could be an electronic dictionary, which, from the databases stored in the memory means of the device, could find foreign language equivalents of words input by the keypad 15. The device can also automatically or at the request of the user translate simple messages e.g. into English when the device detects that the country code of the receiver's telephone number represents a country where English is spoken. Such auxiliary functions are programmed processes known per se, which can be stored in the memory means of the device 4 in such a format that can be executed by the microprocessor controlling the operation of the device.

**[0030]** The stability of the device according to the invention, when opened and placed on a table or a similar even surface during the use of the second user interface, plays a significant role in the ease of use that the user experiences. It is preferable that the second half of the device, that is, the one which includes the large alphanumeric keyboard that is visible when the device is open, is heavy enough to keep the opened device balanced. A suitable distribution of mass is achieved by

placing a majority of the heaviest structural parts in said second half. An advantageous embodiment of the invention includes in the second half for example the microphone and the speaker that functionally belong to the telephone interface, as well as the radio frequency transceiver parts and most of the electronics that realize the operations of the second user interface. When reference is made in this patent application to the fact that the telephone microphone and speaker are parts of the first user interface (the telephone interface), which is located substantially on the outer surface of the device, it should be understood that the microphone and speaker may actually be inside the device, as long as the outer surface has suitable openings to act as means for channelling sound to the microphone and from the speaker. In the embodiment described above with the microphone and speaker in the second half, these openings 5 and 6 may be on the other side of the (closed) device than the rest of the telephone interface parts 7, 8, like in Fig. 6.

[0031] According to the inventive idea related to the presented invention a small-sized mobile phone can be provided with auxiliary functions requiring a larger user interface, so that the device is foldable and that the larger user interface is found within the device. With reference to Figures 2 to 4 above we discussed an embodiment in which the device unfolds as two parts. According to the same inventive idea the device could also be made so that it unfolds in three parts according to Figure 5, or in still more parts in other embodiments. For example in the embodiment shown in Figure 5 the large display 12 of the device comprises two sections, whereby we obtain a total display area, which corresponds to about twice the cross section of the folded device, and still there is room for a complete QWERTY keyboard 15. A person skilled in the art can easily design further alternative embodiments, in which the display and keypad sections are divided in different ways on the surfaces of the unfolding sections of the device according to the invention.

[0032] It is known that a user interface of the mobile phone type corresponding to the first user interface of the invention presented above can also be realized without a display. In one embodiment of the present invention, where we aimed at minimal production costs, the first user interface comprises only a microphone, a speaker and a numerical keypad. The first user interface could even be only a pager, whereby it does not contain any microphone or speaker, but contains a small display. Then of course it is not possible to make any calls with the device.

[0033] Speech, telefaxes and graphical information between users can be communicated with the device according to the invention, which already may be considered as quite versatile communication, taking into account that the device according to the invention resembles a common mobile phone regarding its size and appearance. The device is easy to use, which is particu-

larly enhanced by the fact that it has a telephone user interface which is the same as in an ordinary mobile phone, and the parts belonging to its user interfaces are of a sufficiently large size. The familiar QWERTY order of the alphanumeric keypad also represents the easy to use features.

## Claims

1. A portable communication device (4) for transmitting information in electrical form between a user and a certain data communication system, comprising:

- an outer covering (10, 11) which can be unfolded by actions of the user and the outer surface of which has a first side surface and a second side surface,
- a first user interface that is a telephone user interface for the two-way transmission of speech and comprises keys (7, 8) to control the operation of the device (4) and to enter data into the device, sound channelling means (5, 6) for directing sound to a microphone and from a speaker, and first indicator means (9), and
- a second user interface with second input means (13, 14, 15, 16, 17) and second indicator means (12);

### characterized in that:

- said first user interface consists of parts (5, 6, 7, 8, 9) designed for the interaction between a user and the communication device, which are located on the outer surface of said outer covering (10, 11), so that they can be used without unfolding said outer covering and so that said keys (7, 8) are located on said first side surface and said sound channelling means (5, 6) are located on said second side surface of the outer covering (10, 11), and
- said second user interface consists of parts (12, 13, 14, 15, 16, 17) designed for the interaction between a user and the communication device, which are located inside said outer covering (10, 11), so that they can be used when said outer covering is unfolded.

2. A communication device (4) according to claim 1, characterized in that said first and second user interfaces can be used independently of each other.

3. A communication device (4) according to any previous claim, characterized in that said device comprises a first half (10) and a second half (11) which are equally large in cross section and connected to each other by a hinge joint, so that they are located



against each other when said outer covering is closed, and so that in order to unfold said outer covering they are turned apart around the rotational axis of said hinge joint.

4. A communication device (4) according to claim 3, **characterized in that** said second user interface comprises a display (12) for the presentation of alphanumeric and/or graphical information, and keys (13, 14, 15, 16, 17) to control the operation of the device and to enter data into the device, of which
  - said display (12) of the second user interface is located on an inner surface of the first half (10) and
  - the largest part of said second user interface keys (15, 16, 17) are located on an inner surface of the second half (11).
5. A communication device (4) according to claim 4, **characterized in that** said second user interface comprises character keys (15), which are arranged according to a certain established keyboard order.
6. A communication device (4) according to any of claims 4 or 5, **characterized in that** said second user interface comprises at least one scrolling key (13) for scrolling the information in said display (12) of the second user interface.
7. A communication device according to any of claims 4 to 6, **characterized in that** said display (12) of the second user interface comprises means for the communication of graphical information to the device (4) by touching said display (12) at a specified position.
8. A communication device (4) according to any previous claim, **characterized in that** said second user interface comprises at least one command key (14) for entering commands to the device with the depression of one key.
9. A communication device (4) according to any previous claim, **characterized in that** it comprises means for the execution of application programs and that said second user interface comprises application keys (16) for the selection of certain application program with the depression of one key.
10. A communication device according to any previous claim, **characterized in that** it comprises a fax modem for transmitting and receiving telefaxes through said communication system.

## Patentansprüche

1. Tragbare Kommunikationsvorrichtung (4) zum Senden von Informationen in elektrischer Form zwischen einem Anwender und einem bestimmten Datenkommunikationssystem, mit:

- einer äußeren Abdeckung (10, 11), die durch Handlungen des Anwenders auseinandergeklappt werden kann und deren äußere Oberfläche eine Oberfläche einer ersten Seite und eine Oberfläche einer zweiten Seite umfaßt,
- einer ersten Anwenderschnittstelle, die eine Telefon-Anwenderschnittstelle für eine Zweigeübertragung von Sprache ist und Tasten (7, 8) für die Steuerung des Betriebs der Vorrichtung (4) und für die Eingabe von Daten in die Vorrichtung, Schallkanalisierungsmittel (5, 6), die Schall zu einem Mikrophon und von einem Lautsprecher lenken, sowie erste Anzeigemittel (9) umfaßt, und
- einer zweiten Anwenderschnittstelle, die zweite Eingabemittel (13, 14, 15, 16, 17) und zweite Anzeigemittel (12) umfaßt;

**dadurch gekennzeichnet, daß:**

- die erste Anwenderschnittstelle aus Teilen (5, 6, 7, 8, 9) besteht, die für die Wechselwirkung zwischen einem Anwender und der Kommunikationsvorrichtung entworfen sind und sich an der äußeren Oberfläche der äußeren Abdeckung (10, 11) befinden, so daß sie ohne Ausklappen der äußeren Abdeckung verwendet werden können und so, daß die Tasten (7, 8) sich auf der Oberfläche der ersten Seite befinden und die Schallkanalisierungsmittel (5, 6) sich auf der Oberfläche der zweiten Seite der äußeren Abdeckung (10, 11) befinden, und
- die zweite Anwenderschnittstelle aus Teilen (12, 13, 14, 15, 16, 17) besteht, die für die Wechselwirkung zwischen einem Anwender und der Kommunikationsvorrichtung entworfen sind und sich in der äußeren Abdeckung (10, 11) befinden, so daß sie verwendet werden können, wenn die äußere Abdeckung auseinandergeklappt ist.

2. Kommunikationsvorrichtung (4) nach Anspruch 1, **dadurch gekennzeichnet, daß** die erste und die zweite Anwenderschnittstelle unabhängig voneinander verwendet werden können.

3. Kommunikationsvorrichtung (4) nach einem vorhergehenden Anspruch, **dadurch gekennzeichnet, daß** die Vorrichtung eine erste Hälfte (10) und eine zweite Hälfte (11) umfaßt, die einen gleich großen Querschnitt besitzen und miteinander durch eine

Scharnierverbindung verbunden sind, so daß sie sich einander gegenüber befinden, wenn die äußere Abdeckung geschlossen ist und daß sie zum Auseinanderklappen der äußeren Abdeckung um die Drehachse dieser Scharnierverbindung gedreht werden.

4. Kommunikationsvorrichtung (4) nach Anspruch 3, **dadurch gekennzeichnet, daß** die zweite Anwenderschnittstelle eine Anzeige (12) für die Darstellung alphanumerischer und/oder graphischer Informationen sowie Tasten (13, 14, 15, 16, 17) für die Steuerung des Betriebs der Vorrichtung und für die Eingabe von Daten in die Vorrichtung umfaßt, wobei

- die Anzeige (12) der zweiten Anwenderschnittstelle sich auf einer inneren Oberfläche der ersten Hälfte (10) befindet, und
- der größte Teil der Tasten (15, 16, 17) der zweiten Anwenderschnittstelle sich auf einer inneren Oberfläche der zweiten Hälfte (11) befindet.

5. Kommunikationsvorrichtung (4) nach Anspruch 4, **dadurch gekennzeichnet, daß** die zweite Anwenderschnittstelle Zeichentasten (15) umfaßt, die in einer bestimmten eingeführten Tastaturordnung angeordnet sind.

6. Kommunikationsvorrichtung (4) nach einem der Ansprüche 4 oder 5, **dadurch gekennzeichnet, daß** die zweite Anwenderschnittstelle wenigstens eine Bildlaufaste (13) für die Ausführung eines Bildlaufs der Informationen auf der Anzeige (12) der zweiten Anwenderschnittstelle umfaßt.

7. Kommunikationsvorrichtung nach einem der Ansprüche 4 bis 6, **dadurch gekennzeichnet, daß** die Anzeige (12) der zweiten Anwenderschnittstelle Mittel für den Austausch graphischer Informationen mit der Vorrichtung (4) durch Berühren der Anzeige (12) an einer bestimmten Position umfaßt.

8. Kommunikationsvorrichtung (4) nach einem vorhergehenden Anspruch, **dadurch gekennzeichnet, daß** die zweite Anwenderschnittstelle wenigstens eine Befehlstaste (14) für die Eingabe von Befehlen in die Vorrichtung durch Drücken einer Taste umfaßt.

9. Kommunikationsvorrichtung (4) nach einem vorhergehenden Anspruch, **dadurch gekennzeichnet, daß** sie Mittel für die Ausführung von Anwendungsprogrammen umfaßt und daß die zweite Anwenderschnittstelle Anwendungstasten (16) für die Auswahl eines bestimmten Anwendungsprogramms durch Drücken einer Taste umfaßt.

10. Kommunikationsvorrichtung nach einem vorhergehenden Anspruch, **dadurch gekennzeichnet, daß** sie ein Fax-Modem umfaßt, um über das Kommunikationssystem Telefaxe zu senden und zu empfangen.

## Revendications

1. Dispositif de communication portable (4) pour transmettre des informations sous forme électrique entre un utilisateur et un certain système de communication de données, comprenant :

- un couvercle extérieur (10, 11) qui peut être déplié par des actions de l'utilisateur et dont la surface extérieure a une première surface latérale et une seconde surface latérale,
- une première interface utilisateur qui est une interface utilisateur de téléphone pour la transmission à deux voies de la parole et comporte des touches (7, 8) pour commander la mise en oeuvre du dispositif (4) et pour entrer des données dans le dispositif, des moyens de canalisation de son (5, 6) pour diriger le son vers un microphone et en provenance d'un haut-parleur et, un premier moyen d'indicateur (9), et
- une seconde interface utilisateur avec un second moyen d'entrée (13, 14, 15, 16, 17) et un second moyen d'indicateur (12) ;

## caractérisé en ce que :

ladite première interface utilisateur est constituée de parties (5, 6, 7, 8, 9) conçues pour l'interaction entre un utilisateur et le dispositif de communication, qui sont situées sur la surface extérieure dudit couvercle extérieur (10, 11), de sorte qu'elles peuvent être utilisées sans déplier ledit couvercle extérieur et de sorte que lesdites touches (7, 8) sont situées sur ladite première surface latérale et lesdits moyens de canalisation de son (5, 6) sont situés sur ladite seconde surface latérale dudit couvercle extérieur (10, 11), et

- ladite seconde interface utilisateur est constituée de parties (12, 13, 14, 15, 16, 17) conçues pour interaction entre un utilisateur et le dispositif de communication, qui sont situées à l'intérieur dudit couvercle extérieur (10, 11), de sorte qu'elles peuvent être utilisées lorsque ledit couvercle extérieur est déplié.

2. Dispositif de communication (4) selon la revendication 1, **caractérisé en ce que** lesdites première et



seconde interfaces utilisateur peuvent être utilisées indépendamment l'une de l'autre.

3. Dispositif de communication (4) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit dispositif comporte une première moitié (10) et une seconde moitié (11), qui sont aussi larges en coupe et raccordées l'une à l'autre par un joint de charnière, de sorte qu'elles sont situées l'une contre l'autre lorsque ledit couvercle extérieur est fermé, et de sorte que, afin de déplier ledit couvercle extérieur, elles soient tournées à l'opposé l'une de l'autre autour de l'axe de rotation dudit joint de charnière. 5 10
4. Dispositif de communication (4) selon la revendication 3, **caractérisé en ce que** ladite seconde interface utilisateur comporte un affichage (12) pour la présentation d'informations alphanumériques et/ou graphiques, et les touches (13, 14, 15, 16, 17) pour commander la mise en oeuvre du dispositif et pour entrer des données dans le dispositif, dont 20
  - ledit dispositif (12) de ladite seconde interface utilisateur est situé sur une surface interne de la première moitié (10) et 25
  - la plus grande partie des touches (15, 16, 17) de la seconde interface utilisateur sont situées sur une surface intérieure de la seconde moitié (11). 30
5. Dispositif de communication (4) selon la revendication 4, **caractérisé en ce que** ladite seconde interface utilisateur comporte des touches de caractère (15), qui sont agencées selon un certain ordre de clavier établi. 35
6. Dispositif de communication (4) selon la revendication 4 ou 5, **caractérisé en ce que** ladite seconde interface utilisateur comporte au moins une touche de défilement sur l'écran (13) pour faire défiler les informations sur ledit affichage (12) de la seconde interface utilisateur. 40 45
7. Dispositif de communication selon l'une quelconque des revendications 4 à 6, **caractérisé en ce que** ledit affichage (12) de la seconde interface utilisateur comporte un moyen pour la communication d'informations graphiques au dispositif (4) en touchant ledit affichage (12) à une position spécifiée. 50
8. Dispositif de communication (4) selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ladite seconde interface utilisateur comporte au moins une touche d'ordre (14) pour entrer des ordres au dispositif lors de l'enfoncement d'une touche. 55

9. Dispositif de communication (4) selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un moyen pour l'exécution de programmes d'application et **en ce que** ladite seconde interface utilisateur comporte des touches d'application (16) pour la sélection d'un certain programme d'application avec l'enfoncement d'une touche.

10. Dispositif de communication (4) selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend un modem de fac-simile destiné à transmettre et recevoir des téléfaxes à travers ledit système de communication.

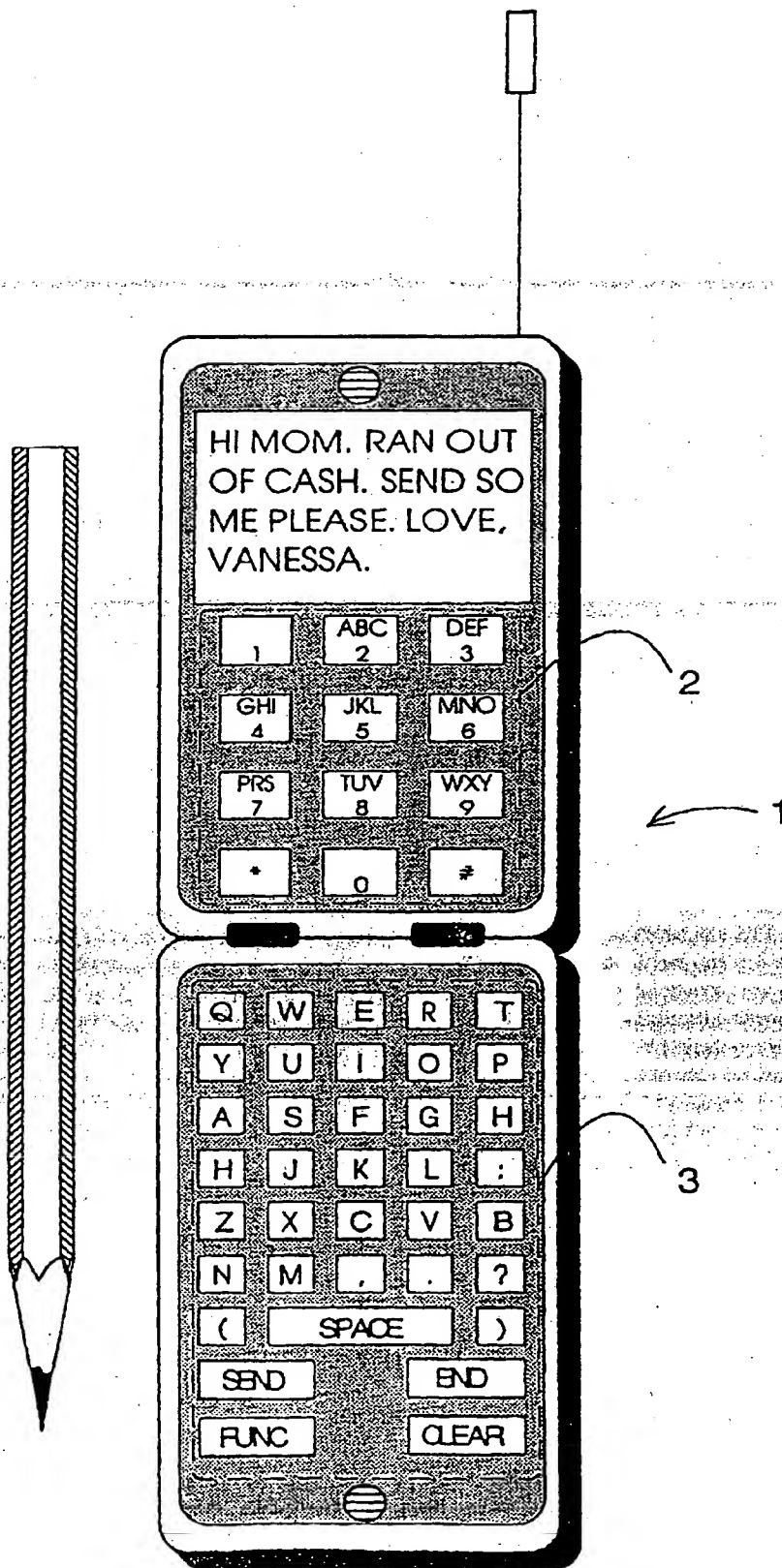


Fig. 1

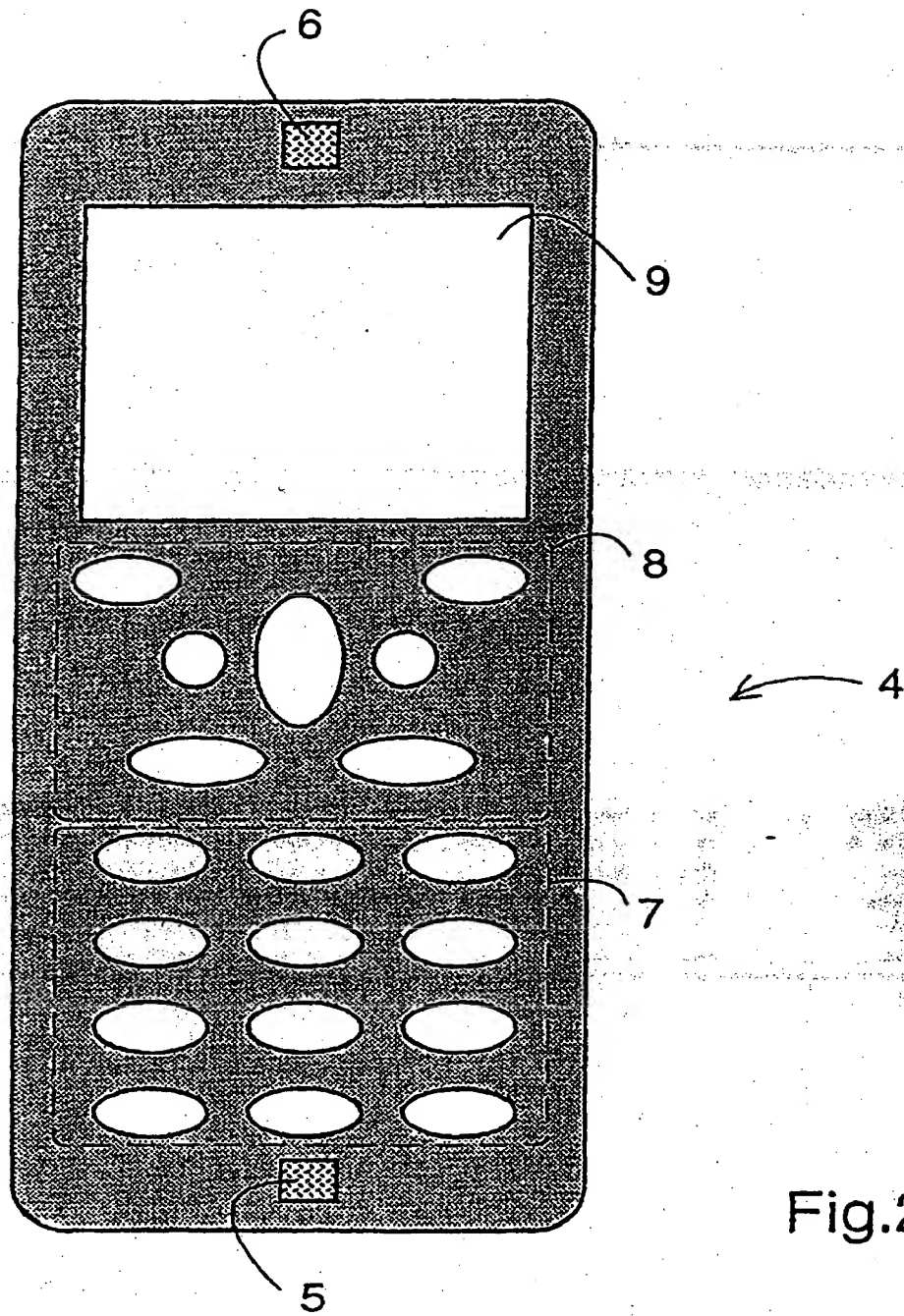


Fig.2

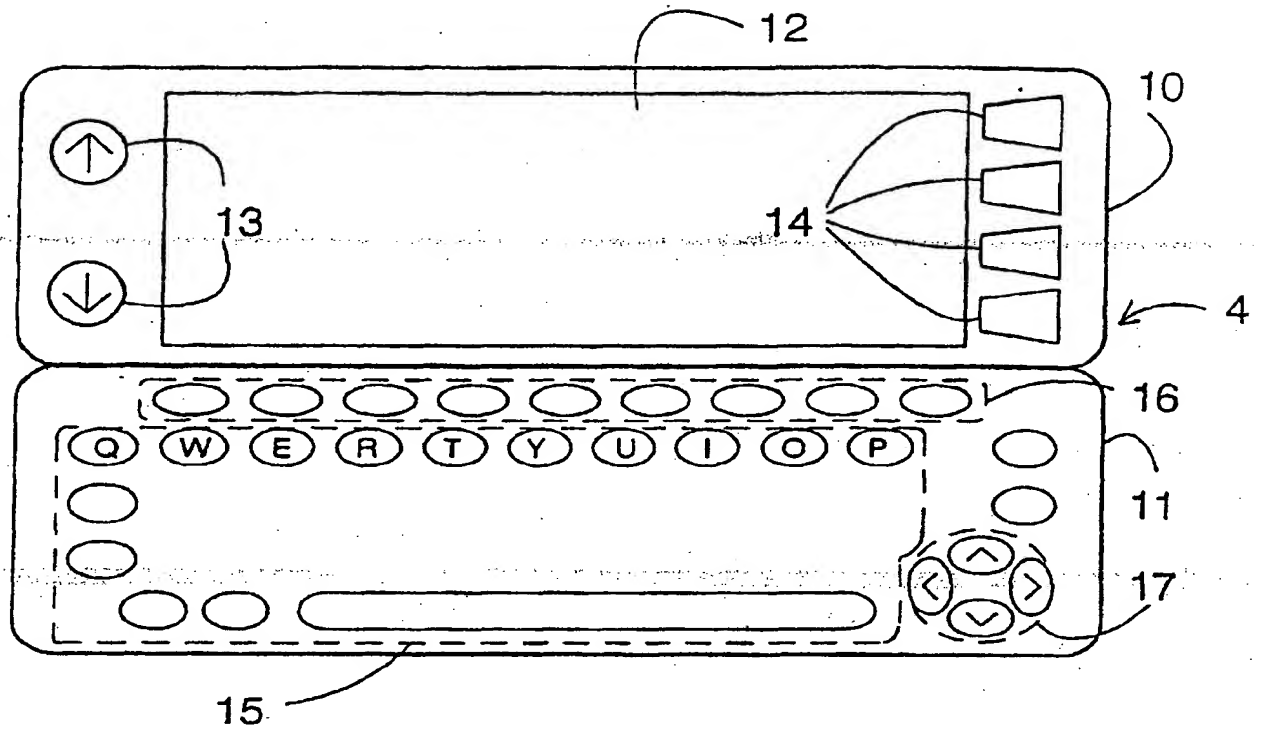


Fig.3

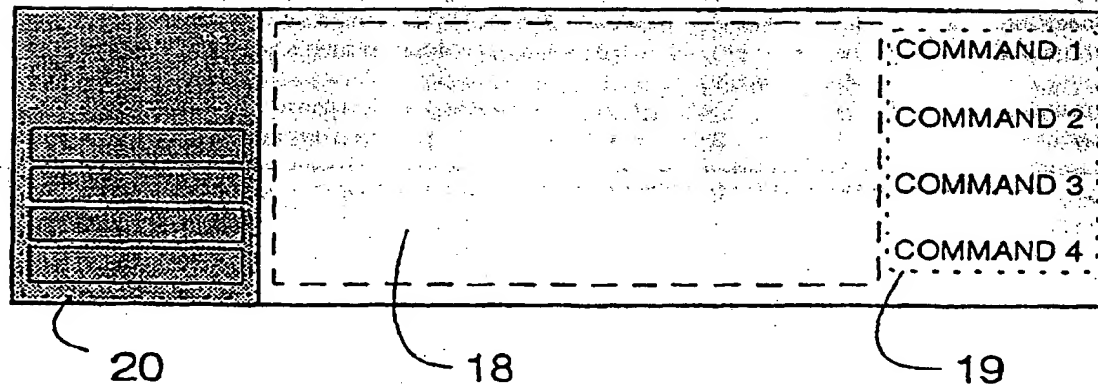


Fig.4

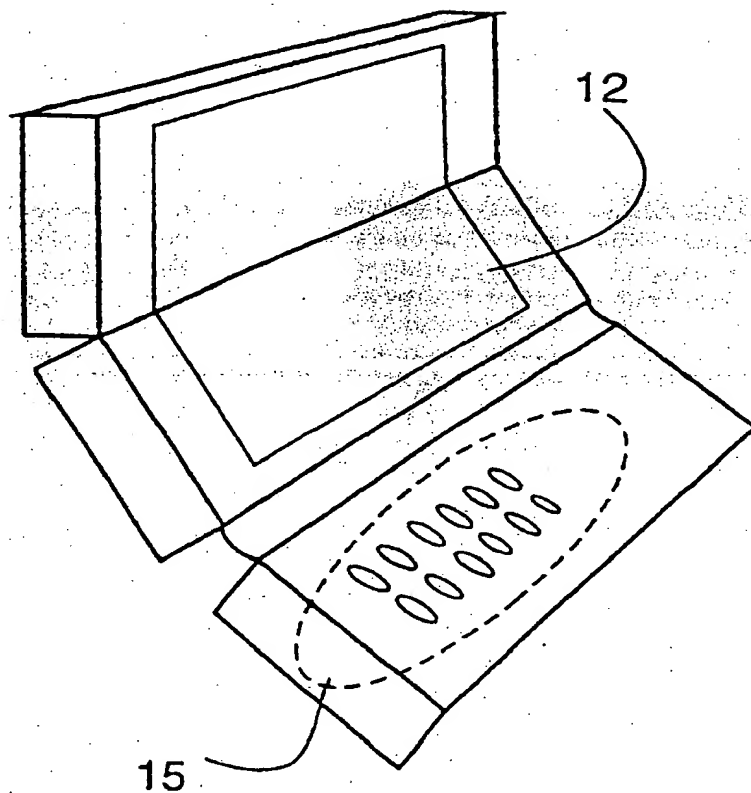
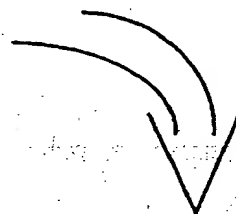
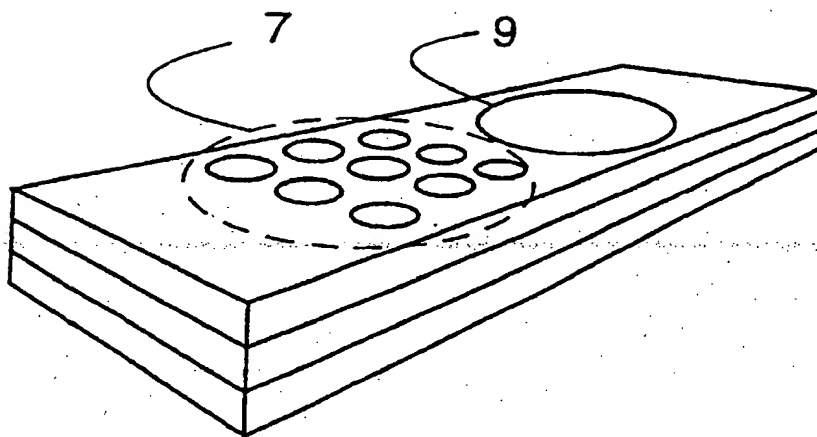


Fig.5

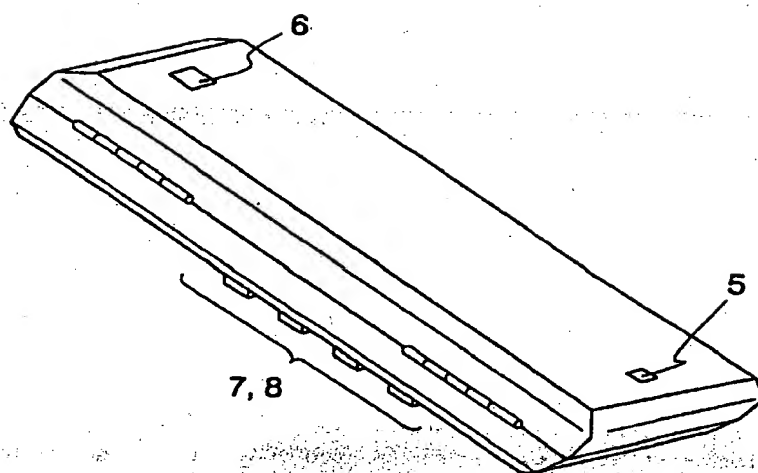


Fig. 6